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A.D. 1873 . . . . . N° 3781°.

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**DISCLAIMER AND MEMORANDUM OF ALTERATION**

**OF**

**WILLIAM WHITE.**

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**PRECIPITATING SEWAGE AND OTHER  
FOUL WATERS, &c.**

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A.D. 1873 . . . . . N° 3781\*.

## Precipitating Sewage and other Foul Waters, &c.

### DISCLAIMER AND MEMORANDUM OF ALTERATION.

Filed 17th February 1875.

5 In the Matter of a Patent granted to WILLIAM WHITE, of 30, Thurlow Road, Hampstead, in the County of Middlesex, for the Invention of "IMPROVEMENTS IN THE PRECIPITATION OF SEWAGE AND OTHER FOUL WATERS, AND IN THE PREPARATION OF PRECIPITATING MATERIALS," the same bearing date the Twentieth day of November, 1873, No. 3781.

DISCLAIMER AND MEMORANDUM OF ALTERATION proposed to be entered by the said William White, as such Patentee as aforesaid, pursuant to the Statutes in that case made and provided.

10 WHEREAS since the filing of my Specification to the said Letters Patent for "Improvements in the Precipitation of Sewage and other Foul Waters, and in the Preparation of Precipitating Materials," I have been advised that the portion of my Invention which relates to the preparation of the materials has not that novelty which I had supposed  
15 it to possess :



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And whereas it is not my intention to make or retain any claim to the preparation of the materials to be employed in the precipitation of sewage and other foul waters :

And whereas I have discovered a clerical error in my Specification at page 4, line 24, of the Specification as it is printed by Her Majesty's 5 Printers, by the omission of the word "such" after the word "of," which results in some inconsistency between this sentence and the sentence commencing at line 26 on the same page :

I therefore for these reasons desire to disclaim and alter <sup>the title of the Invention, and</sup> my said Specification, and I do hereby disclaim and alter the same by omitting 10 from the title the words "and in the preparation of precipitating materials," and by inserting at page 4, line 24, after the word "of" the word "such," and by omitting the third claiming clause of the Specification at page 6, lines 14 and 15.

And in order that the effect of this Disclaimer and Memorandum of 15 Alteration may be better understood, I annex a copy of the Specification as it will appear when such Disclaimer and Memorandum of Alteration has been made as aforesaid :—

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM WHITE, of 30, Thurlow Road, Hampstead, in the County of Middlesex, 20 send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria by Her Letters Patent, bearing date the Twentieth day of November, in the year of our Lord One thousand eight hundred and seventy-three, in the thirty-seventh year of Her reign, did for Herself, Her heirs and suc- 25 cessors, give and grant unto me, the said William White, Her special license, that I, the said William White, my executors, administrators, and assigns, or such others as I, the said William White, my executors, administrators and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein 30 expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention of "IMPROVEMENTS IN THE PRECIPITATION OF SEWAGE AND OTHER FOUL WATERS," upon the condition (amongst others) that I, the said William White, my executors or 35



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administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent  
5 Office on or before the 26th day of May 1874.

NOW KNOW YE, that I, the said William White, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

10 In the Specification of a Patent No. 2532, dated 24th July 1873, it is stated that in the treatment of sewage and cesspool water I introduce milk of lime to neutralise any excess of acid and to precipitate calcic phosphate, which in some cases I mix with the sewage or cesspool water.

15 Instead of milk of lime simply, I find the purifying and clarifying power of such method of precipitation is greatly increased by using lime charcoäl, which I prepare by calcining an intimate mixture of peat or sawdust with chalk or lime, or magnesian limestone, or other cheap and convenient substances resulting on calcination in a combination of  
20 carbon with calic oxide or calcic and magnesian oxide. I mix the peat or sawdust by preference with chalk or limestone in such proportions as to yield a product containing about 90 per cent. of lime and 10 per cent. of charcoal. I calcine the mixture in iron or clay retorts at a temperature sufficient to expel the carbonic acid from the chalk. If  
25 lime be substituted in making the mixture a lower temperature will suffice in the calcining process; I thus obtain charcoal in a very porous and divided state disseminated amongst lime. When this lime charcoal is used as a precipitating agent, the lime acts both chemically as a precipitant and also mechanically to cause the charcoal to sink through the  
30 sewage, so bringing it into intimate contact with it, without which the powerful defecating and deodorising properties of the charcoal could not be excited.

A very advantageous way of treating sewage and other similar foul waters is to add to them first bone or mineral phosphate of lime rendered  
35 soluble by means of hydrochloric or other acid, and afterwards to use



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lime charcoal to precipitate the phosphate of lime together with remaining impurities in the sewage.

In some cases, in place of such lime charcoal, I prepare and use in a similar manner a lime coke. I mix intimately small coal or coal dust with chalk or lime and introduce the mixture into the retorts at gas- 5 works. The result is a form of lime charcoal which I call "lime coke," such as I require for precipitation. This lime coke may conveniently contain about 80 per cent. of carbon. Coke being of a denser nature than charcoal it is desirable to employ a larger proportion.

I also prepare a similar precipitating material, which I designate 10 phosphatic charcoal or phosphatic lime charcoal, from an intimate mixture of pulverized or precipitated mineral phosphates, calcic, or aluminous (which phosphates usually contain a considerable proportion of calcic carbonate) with peat or other carbonaceous matter, and use the same in like manner as the lime charcoal. 15

I also use such phosphatic lime charcoal for precipitation by simply mixing it in a powdered state with the sewage and allowing it to settle.

I prepare phosphatic lime charcoal in a similar manner to that in which lime charcoal is prepared, using in place of chalk or limestone 20 cheap phosphatic minerals containing a large proportion of calcic carbonate. The phosphatic ingredients in the mineral become part of the phosphatic lime charcoal, and ultimately serve to enrich the precipitate from the sewage and render [it more valuable for manurial purposes. 25

Sewage is often so diluted with water and mingled with manufacturing refuse, having little value as manure, that it would be wasteful to use phosphates after the manner described. Under such circumstances I employ lime charcoal alone for precipitation, or what I call lime clay charcoal obtained by calcining lime and clay together or separately with 30 carbonaceous matter, which simple and inexpensive precipitants may be used either with or without, or before or after calcium chloride and ferrous sulphate, as set forth in my former Specification, No. 2532. I prepare clay charcoal in the same way as lime charcoal, substituting clay for chalk or limestone. The clay acts as a precipitant and also 35



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mechanically to weight the charcoal so that it may sink through the liquid in which it is required to act.

In treating dilute sewage clay charcoal is very advantageously used after the sewage has been treated with calcium chloride and ferrous  
5 sulphate.

Sewage and foul waters are of many qualities, and according to their variety require special precipitants, and taking carbon as the primary and essential element I vary its associates of lime, phosphates of lime and alumina, magnesia, and clay to meet the particular condition, and  
10 where the precipitate is unsuitable for manure it may be drained dried and calcined for use again as a precipitant. With carbon so varied in its associates the precipitation of almost every impurity in sewage or foul waters from dye works, print works, paper mills, and other factories may be accomplished.

15 The amount of precipitant employed will vary with the quality of the sewage, and is best ascertained by a preliminary trial. I prefer that the precipitate should amount to one-half per cent. or more of the weight of liquid treated.

Having thus described the nature of my said Invention, and the  
20 manner of performing the same, I would have it understood that I claim,—

1. The treatment of sewage and other foul waters with lime charcoal, phosphatic lime charcoal, or clay charcoal, such materials being added to the sewage and allowed to sink through it so as to carry down with  
25 them as a precipitate some of the impurities which the said sewage or foul waters contain, substantially as described.

2. The treatment of sewage and other foul waters with phosphate of lime rendered soluble by an acid, and then with lime charcoal or phosphatic lime charcoal, substantially as described.

30 In witness whereof, I, the said William White, have hereunto set my hand and seal, this Twenty-fifth day of January, in the year of our Lord One thousand eight hundred and seventy-five.

WILLIAM WHITE. (L.S.)

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To the Commissioners of Patents for Inventions.

I hereby grant my fiat, giving leave to the above-named William White to file in the Great Seal Patent Office, with the Specification to which the same relates, the above-written Disclaimer and Memorandum of Alteration.

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Dated this Sixteenth day of February, One thousand eight hundred and seventy-five.

RICHARD BAGGALLAY,  
Attorney-General.

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